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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,397	10/07/2003	Nobuyuki Hokari	A8319.0026/P026	5471
24998	7590	10/06/2006		
DICKSTEIN SHAPIRO LLP 1825 EYE STREET NW Washington, DC 20006-5403			EXAMINER NGUYEN, TAM M	
			ART UNIT	PAPER NUMBER
			1764	

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/679,397	<b>Applicant(s)</b> HOKARI ET AL.	
	<b>Examiner</b> Tam M. Nguyen	<b>Art Unit</b> 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2006.  
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 16 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-6 and 16 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

The rejection of claims 1-6 and 16 under 35 USC § 112 is withdrawn by the examiner in view of the amendment filed on July 19, 2006.

Since a new-Final Rejection follows, applicants' arguments will not be addressed.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCollum et al. (3,948,755) in view of JP02002294257A.

McCollum discloses a process for upgrading a heavy oil by contacting the heavy oil with water at a high temperature and pressure in the presence of a catalyst comprising a metal oxide to reduce metals (e.g., vanadium) and sulfur compounds in the heavy oil. McCollum also discloses that the water also contains a reaction accelerator (e.g., methyl alcohol). The process is operated at a temperature of from 600-900° F and at a pressure of about 4000 psi (27 MPa). It is noted that McCollum does not specifically disclose that the vanadium is scavenged in the form of vanadium oxide and or metallic compound and does not disclose that sulfur is scavenged in the form of a sulfate and/or a metal sulfide. However, the heavy oil is contacted with water at a high temperature and pressure as claimed. It would be expected that at least one vanadium and at least one sulfur compound produced in the process of McCollum would be in the claimed form. (See col. 3, line 56 through col. 4, line 18; col. 7, line 67 through col. 8, line 50; col. 9, line 65 through col. 10, lines 6; table 9)

McCollum does not disclose that water is heated to 300 to 500 and pressuring to 10 MPa to 30 MPa before contacting with the heavy oil, does not disclose that the feedstock is a hydrocarbon heavy oil, does not disclose that water is either supercritical water or subcritical water, and does not disclose that the reforming oil can be used in a gas turbine.

The JP reference teaches a method for reacting a heavy oil with supercritical water and then with a scavenger for sulfur and vanadium to eliminate sulfur and vanadium from a heavy oil and the heavy oil can be used in a gas turbine process. See abstract.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of McCollum by utilizing a heavy oil as a feedstock as taught by the JP reference because it would be expected that either liquid feed or solid feed can be treated in the process of McCollum.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of McCollum by heating and pressuring the water as claimed because McCollum teaches that the process is operated at a temperature of from 600-900° F and at a pressure about 4000 psi (27 MPa). Therefore, it is affective to heat and to pressure the water to the operating condition before passing the water into the reaction zone.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of McCollum by operating the process of McCollum at either supercritical water or subcritical water because McCollum suggests water used in the process is at high pressures and at a temperature of from 600 to 900° F. Therefore, one of skill in the art would operate the process of McCollum at any condition including at either supercritical water or subcritical water.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of McCollum by using the heavy oil for a gas turbine as suggested by the JP reference because the heavy oil of McColum can be used for any purpose including in a gas turbine process.

Claims 1, 2, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP02002294257A in view of McCollum et al. (3,948,755)

The JP reference teaches a method for reacting a heavy oil with supercritical water and then with a scavenger for sulfur and vanadium to eliminate sulfur and vanadium from a heavy oil and the heavy oil can be used in a gas turbine process. See abstract.

The process of McCollum is as discussed above.

The JP reference does not specifically the claimed operating condition

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified to the process of the JP reference by utilizing the operating conditions of McCollum because one of skill in the art would utilize any operating conditions which is effective with supercritical water including the conditions as taught by McCollum.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tam M. Nguyen whose telephone number is (571) 272-1452.

The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tam M. Nguyen  
Examiner  
Art Unit 1764

TN

